

MAY - JUNE - 1957 Vol. 3 No. 2

# NCRS

## THE *Camera Craftsman*

PUBLISHED BY: NATIONAL CAMERA REPAIR SCHOOL      ENGLEWOOD COLORADO

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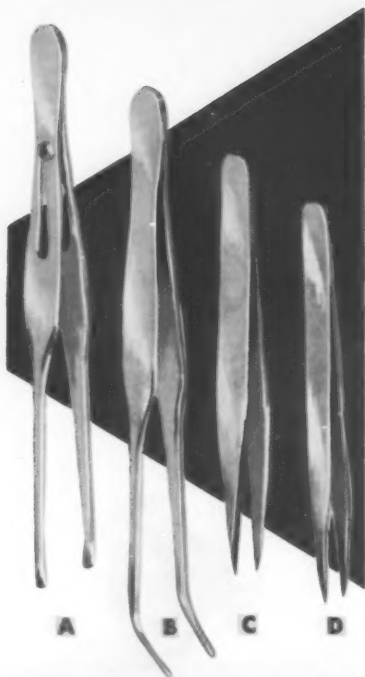
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PUBLISHED FOR STUDENTS  
GRADUATES AND FRIENDS OF THE  
NATIONAL CAMERA REPAIR SCHOOL

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## The Director's Viewpoint

By SAMUEL L. LOVE



If you were willing and able to purchase all the parts to assemble a low-priced automobile, how much money do you think you'd save over the regular purchase price? A surprisingly small amount of the total cost of a modern car is charged directly against assembly. Chances are that if you considered your time worth only \$1.00 an hour, your cost for a "do-it-yourself" Ford would be the same as you'd pay for a fully assembled Continental!

This is a point which is very important to you as a serviceman. Whether the product is a box camera or an automobile, the costs involved in the original assembly are minor compared to the costs that might be involved later in disassembling and reassembling one part of the machine. It is often difficult to attach a proper price to the repair of any piece of equipment, because of the delicate balance between the original cost and time involved in making a repair. In the case of an inexpensive camera, for example, it is quite possible that your charge for making a repair would be equal to the total original cost of manufacture.

It is important that you understand the fundamentals, at least, of "cost accounting" in order to properly evaluate your own charges.

An economical repair is not necessarily one which is "cheap". As you learn during your course of training, the charge made to a customer for a repair job involves much more than the cost of the parts which you use and the amount of time that you spend in making the repair.

It is difficult to draw the line between a repair that can be recommended and one that is not economical. Occasionally, the market value of the piece of equipment has nothing whatever to do with the decision. It is not impossible that more money will be spent in the repair and maintenance of a piece of equipment during its lifetime than its original cost.

Today, few people consider a periodical check up of their cameras as normal procedure. Yet there is no question about the fact that a small amount spent regularly for preventative maintenance would mean much more dependable regular service. Were there enough Camera Craftsmen available to do the job, five to ten per cent of the purchase price of a camera spent each year in cleaning and lubrication, would mean more trouble-free service and longer useful life as well.

This is a goal toward which we should all be working. It can only be achieved by a combined effort of every one involved, but the rewards to both repairmen and camera users are so great that no effort should be spared. To the camera user it will mean that, barring accidents, he will never be faced with the problem of requiring a repair job that is not economical. This is also an advantage to you as a camera repairman since there would be less chance for you to have to convince a customer that a particular repair is worth completing. At the same time, preventive maintenance in the camera repair shop is far less frustrating than is the rush job on a piece of equipment that suddenly stops working.

Very few auto owners continue to drive their cars without inspection or lubrication. Yet without the public education that has made regular automobile maintenance a normal thing, millions of cars would never see the inside of a repair shop until bearings disintegrated or the engine "threw a rod".

Consider the value in time and money for both you and your customer when twice a year camera check ups become normal and then start working on this project: "Why should you wait until it won't work at all? Check your cameras Spring and Fall!"

#### HELP WANTED STUDENTS! FRIENDS!

This magazine is published for YOU! Send in your comments on any related topic. Your experiences and opinions are valuable to us all.

Address your material to the Editor, "The Camera Craftsman", Box 174, Englewood, Colorado.

Don't forget to use the handy order form or at least use a separate sheet of paper for supply orders to avoid confusion and lost time.



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All models safely shipped in flaring type cartons, fully assembled, and ready-to-use. Price includes complete set of drawer front labels, drawer dividers, and rubber feet. If not completely satisfied, simply return in 10 days without explanation for full refund.

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**National Camera Repair School  
Englewood, Colo., U.S.A.**

# Camera Repairman's HANDBOOK



Whether you run a camera repair shop, operate a Photo Supply Store or just like cameras, you will find valuable information in this concise volume. Have everything at your finger tips.

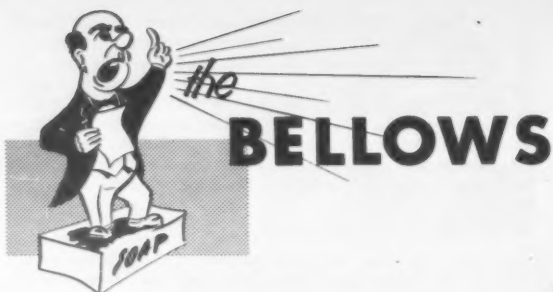
This edition contains a great variety of valuable technical data for all types of cameras and it's equipment, needed by the repairman in his daily operation.

B-751-1 Paper bound - \$5.95

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- FORMULAE:
- STANDARDS:
- SHOP RECIPES:
- SHOP PRACTICES:
- CONVERSION TABLES:
- PHOTOGRAPHIC DATA:

Compiled and Edited by the NCRS Staff



I enclose a picture taken on my bench at the point reached during the dis-assembly described in the lesson. This actual procedure was arranged for with one of my dealer customers with the understanding that I would assume any repair cost on the ROLLIEFLEX which might come to him. This particular camera was turned in to him with the complaint that the film advance mechanism was out of order. His customer made the statement that he was not in a position to have it repaired at that time because of the cost to him. The dealer said to leave it with him and he would take care of it. The owner was somewhat mystified by the offer, but no explanation for this generosity on the dealer's part was offered and the camera was turned over to me with the dealer being advised that it was my intention to dis-assemble the camera in accordance with your lesson text. After completing the disassembly study and then reassembling his trouble was corrected by adjustment of the feeler roller cam. The camera was returned to the dealer after 13 hours of study work. It was in proper operating order. (The dealer now says he wants to see my grade on the lesson.)

Martin E. Sledd  
Eugene, Oregon

Our congratulations to Mr. and Mrs. Raymond Warnke on the arrival of a baby girl February 7th.

I thought the problem brought up by Mr Chester C. Crumrine in the Crossroads Section of the March-April issue of "The Camera Craftsman" was most interesting and a problem which will always confront us to some extent. I believe Mr. Schmitt's answer was very logical and the best solution to the problem. I like your magazine and look forward to receiving it.

Charles Attaway  
Bisbee, Arizona

I have been handling the majority of the local service for several months now and with the little added information I yet require, will have it all - many thanks to all of you at NCRS.

Paul Ruminsky

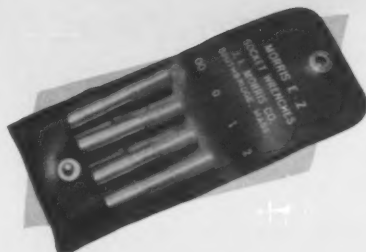


In the lesson "The Photographic Print" I sent in this picture of meat my Saltzman Enlarger showing a 1" x 1 1/2" reduction and a 40" x 58" mural both made from a 5 x 7 negative.

I noticed that a few fellow students are inquiring about this in the Camera Craftsman.

This could really be used as a good example of the versatility of the enlarger.

Sincerely,  
Ernest D. Sokol  
Erie, Pa.



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An easy-to-use wrench of light weight aluminum for Morris Hex Screws and Nuts. Design permits reaching hard-to-get places.

SIZES: 60, 6, 1, 2, each \$ .75  
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Nos. 61 to 70, each .38  
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As the salesman wound up his high-powered pitch for a new household gadget, dramatically and repeatedly emphasizing its time- and labor- saving points, the man of the house appeared lost in deep thought. Finally, he turned to his wife and said wistfully, "Dear, I've been trying to remember . . . What was it we used to save, besides time and labor?"

## CIRCUITRACER

*A small dependable  
rugged tester*



A NEW inexpensive electric circuit tester especially adaptable for camera repair work. It is capable of locating and identifying dead and live circuits of any voltage resistance.

- Checks electric photo-flash circuits
- Analyzes breaks and high resistance joints
- Tests flash wiring for breaks or bad connections

Put this handy unit into your carry-out case or pocket for quick tests anywhere. Tested and approved by "National ServiShops" for camera repair.

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I have been so swamped with instrument and camera repairing, I have been working day and night which left no time for study.

Harold Foster

Be doing some repairs on box cameras for awhile, mainly to get the feel of things and to establish some connections.

Also I mentioned in an earlier letter that I've solved the spare parts problem on cheap cameras, Cannibalization. I have a deal with a local camera shop to take off his hands trade-in cameras that are not working, for 50¢ each. Then I'll use whatever parts I can on repair jobs. This cuts down on my deadline time and gets more work. Such things as shutters, springs, glass, lenses etc. can be re-used at no cost to the customer as it is absorbed in the repair price. Cameras like the Spartus press flash and other lesser known brands are hard to get parts for, sometimes, to repair them, so my idea works pretty well.

Have a Kodak Reflex II to repair for this merchant, and have to straighten the back, make a new hinge pin and two pin retainer clips without anything to go on. This is "duck soup" for a machinist.

The back is a slow process to straighten as it fell on the tripod socket and has several twists in it but after some phenagling I'll make it OK. The shutter wasn't damaged or the lenses so I won't have to go into them.

School is on now and my daughter, Denise, is in the third grade. She'll be 8 in January. My wife, Martha, works at the Lanc Co. Nat'l Bank.

Am selling my argus C3 and buying a Rival MX as a companion to my Praktica, so all my accessories will be interchangeable. Hope to get a 400 mm lens for my nature photography. A friend is trying to sell me a surplus long focus lens but decided to buy one designed for 35 mm negative.

After being "in the cellar" most of the past year, I finally came out in first place in our camera club in the black and white division.

I'll close now if you haven't already fallen asleep reading this line of "bull".

Charles K. Schickel



## general topics



by: Chester Bernard

### DON'T TAKE SHINGLES OFF THE ROOF

How much should be charged for repairing a camera at home in your spare time? Should it be as much as would be charged by a full time repair shop, or should it be less? The answer to these questions is important to the part time repairman as well as to the whole photo industry.

It appears from information received at IPEX that there are some part-time repairmen in some areas who have been undercharging for their work. It is hoped that none of these repairmen are NCRS students. This practice is probably based on the erroneous idea that lack of overhead justifies these lower prices.

These people are taking shingles off the roof of the photo industry if they charge less for doing a job than the full time shop in their own area. Let us examine some of the effects of these missing shingles.

If he undercharges a customer, he is saying that he does not know what he is doing. Undercharging tells the customer that the repairman has a low regard for his own ability and destroys confidence. Customers know that a skilled craftsman has a right and need to be paid for his skill.

Many price cutters may not be very expert craftsmen and feel that their time isn't worth as much as yours. They are probably right. The fact that they are much slower will naturally reduce the price per hour. However, they can still price the individual job according to accepted standards for that job, even though it takes much longer to complete it. Even slow people can do a good job, guarantee their work, charge a legitimate price and be in step with the successful people in the industry.

In analyzing the reasons for charging a full price, a price cutter will find that every one of them is in his own best interest. Good feeling and cooperation between different levels of the industry usually works toward the welfare of all. When good feeling does prevail, the full time shop can often utilize the services of the part time repairman when an unusual flood of business hits him. Business does not always maintain an even flow and such aid is often desirable.

A price cutter might be justified in charging lower prices than you do if he was serving his own cause by doing so. But, friends cannot be made by charging low prices and business friends are needed, now and always.

The price cutter should consider the viewpoint of the various levels of the industry and calculate where he can win friends or gain admiration and respect by his practice.

The factories will not be his friends as they are interested in the welfare of existing shops because they are needed. The distributors will not be his friends. That leaves only the customer who has been attracted by underpricing. These customers will forsake him and look for another pigeon when an attempt is made to raise prices to a proper level.

Just how important is this matter of overhead? Those who have been in business know. Those who have not been in business need to give careful thought to the many costs that must be met by a business. Here are a few: rent, heat, light, phone, taxes, insurance, water, accounting, advertising, salaries, delivery and cost of inventories. All of these costs must be added to time and materials to make ends meet. If they are not anticipated, these costs will kill a new business quickly and certainly.

Some people may be objecting to this whole theory because there is no full time camera service shop in their communities. The same fundamental rules will apply. Some part time repairmen are looking forward to the day when they can operate on a full time basis and serve communities that do not have such service now. Price cutting is a sure way to destroy future prospects for success. Anyone in this position should be equally zealous in avoiding the pitfalls of price cutting.

No one can ever be successful in business by following poor business practices. Price cutting is poor business.

Mr. Dota C. Brown, Student #703, and his charming wife dropped in to visit on March 2nd. Unfortunately, it was Saturday and only a few of us were here to meet them.

Mr. Brown is a well known magician and travels extensively, entertaining at schools throughout the country.

During his visit, Mr. Brown outlined his plans to open a camera repair shop this summer. Good luck, Mr. Brown!

## A HUMOROUS ACCOUNT OF FOUR FASCINATING HOBBIES

A hobby to most people is a means of relaxation after the grind of an average working day. Whether it's dabbling in paints, writing a poem or sitting down to a game of bridge, its ultimate goal is to rid the individual of the tensions and general tiredness accumulated from nine-to-five.

To Dr. James R. Reuther, a successful optometrist in Gainesville, Texas, however, a hobby is not merely a leisurely pastime. Dr. Reuther is an enthusiastic participant in four hobbies to which he devotes a great deal of time and energy and which are far from commonplace outlets for creative endeavors.

In **THE WIFE OF FOUR HOBBIES** by Ruth E. Reuther, published by Pageant Press, Inc., Mrs. Reuther relates her hilarious experiences as her husband indulges in art, photography, magic and - literally - a three-ring circus.

The result is a thoroughly delightful and extremely funny book, but it is also the story of two people whose spirit of giving to their community brings happiness to countless others.

Born and brought up in Gainesville, Texas, Ruth E. Reuther is a graduate of Gainesville Junior College and North Texas State College. The mother of a daughter, Mrs. Reuther has found the time to teach high school English, assist her husband in visual training, and actively participate in local social and civic affairs.

No newcomer to the field of writing, she has published numerous scientific and educational articles and has lectured extensively throughout Texas.

(Ed's note) To further his knowledge of photography and also enable him to maintain his optometry and photo equipment. Dr. Reuther is currently enrolled with NCRS.

## AUTOMATION

Often automation is the means by which a company or an industry is saved, and the jobs that might have been lost are also saved. Consider foreign competition, for instance. Following World War II when skilled labor rates in the plants of the foreign competitors of the camera industry ranged from 27 to 45 cents an hour the rate in one major American camera plant was more than \$2. By automation progressive camera manufacturers have successfully met the competition of foreign-made cameras. One popular motion picture camera is available today at the same price as in 1939, even though it is a greatly superior product and the value of the dollar is about half what it was in 1939. Employment in the industry is more than three times what it was in 1939.

## WHAT SERVICE MEANS TO PAKO

If there is any one slogan or text from which we preach here at PAKO, it is that giving good service means selling.

Psychological or high-pressure selling is avoided like the plague. Rather, we help the customer to buy. New methods have been injected into photoprocessing. Continuous processing or automation is taking a strong hold on the fancy of the finisher.

Color -- several kinds -- has hit the trade with the impact of a ton of bricks. What should he do about it? Should he go into automatic processing of Black and White? What kind of color should he tackle? Will it pay? Could he continue in his present location or must he move? What shall he do about his Black and White operation? How long will it take him to recover his investment?

Service provides the answers to his questions, shows him the cost and profit potential, lays out his new plant or re-arranges his old, guides his purchases of new equipment. Service installs what he buys, instructs him in operation and maintenance, helps him keep each unit in good running condition.

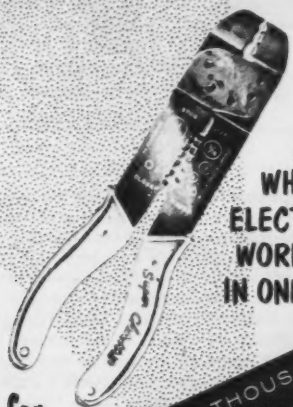
Service brings its own reward in customer satisfaction, pleasant mutual relations, the internal glow that comes from a job well done, and, of course, more business. When the benefited purchaser needs supplies or more machines or accessories of whom else would he think than the man who has served him best and on whom he knows he can count.

H. H. Freeman  
Director of Training  
Pako Corporation  
Minneapolis, Minnesota

## HOME RUN

The devil was always challenging St. Peter to a game of baseball, but St. Peter never took him up. Finally, the Dodgers, the Giants and the Yanks all went to heaven. So naturally St. Peter called up the devil. "Now I'll play you that game of baseball," he said. "You'll lose," said the devil, "You'll lose." "Oh Yeah?" replied St. Peter. "Right now I've got the greatest collection of baseball players you ever saw. What makes you so sure we'll lose?" "Because," laughed the devil "we got all the umpires down here."





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**ServShops Product**

National Camera Repair School  
Englewood, Colo., U.S.A.

— STAFF —

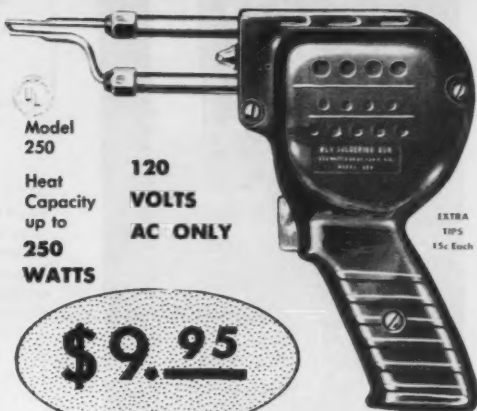
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## ELECTRONIC SOLDERING GUNS



Model  
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Heat  
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up to  
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WATTS

120  
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AC ONLY

EXTRA  
TIPS  
15c Each

**\$9.95**

Just pull the trigger and Presto in 3 seconds the gun is hot and ready to do your soldering job. Because the tip is actually part of the electronic element it produces heat instantly and in great volume. The capacity of this unit is truly AMAZING. It really does a job.

Proven successful by thousands of satisfied users.

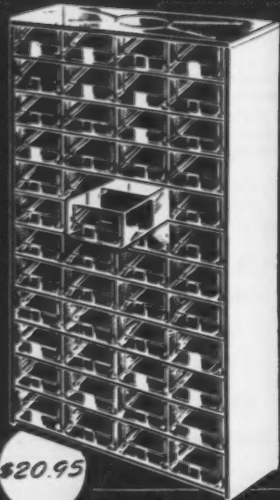
### 6 OUTSTANDING FEATURES

1. Heats instantly — 3 seconds.
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4. Straight-line design and built-in spotlight make for greater visibility.
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**ServShops Product**

National Camera Repair School  
Englewood, Colo., U.S.A.

Camera Craftsman, May - June, 57 9



**\$20.95**

**J-48 48 Drawers**  
(144 compartments)

Dimensions	Shipping
High Wide Deep Weight	
22 1/2" 12 1/2" 6" 19 lbs.	

**ServiShops Product**  
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Englewood, Colo., U.S.A.

#### THE EARLY BIRD

Getting off on the right foot in the morning is one of the best known ways of making the day successful.

We all need to tune up our bodies with a few physical or mental daily doses while getting our bad dreams of last night out of our systems and thinking of the great possibilities of what we can accomplish before next pay day. Many people steal those precious last ten minutes of sleep and then break the speed limit with their toast and coffee, and start the day with a handicap of mental ulcers. Then they wonder why frustration has set her pallid mark on them.

... Try rising ten minutes earlier every morning and reading inspiring words from Emerson or Washington or St. John with your coffee. You'll be amazed at the attitude of poise and serenity with which you will meet those dragons who stand in your path during the day.

Life brings no security--only opportunities. This is the land of opportunity for those who get off on the right foot in the morning and keep going right all day.

(Mesh Marks)

#### FACULTY SUGGESTION OF THE MONTH

by: Bud Fowler



A frequent problem encountered by your instructors is diagnosing equipment malfunctions solely through the limited medium of the written word. Obviously, the best method is to send the mechanism to your instructor for his observation and comments. However, this is not always possible, which leaves you with the task of explaining your difficulties on paper. A clear, concise and well written request can usually be answered quickly. But all too often letters are received containing urgent pleas for help which may, as a typical example, simply state "I have tried everything, but I can't get the shutter for this lesson to operate properly. Any help you can give me will be greatly appreciated." Such a request requires additional correspondence before a satisfactory answer can be given, yet similar letters are received quite frequently. Your instructor needs every bit of information you can give him in order to solve your problems.

In writing for help, one of the most important items to note is precisely at what stage of disassembly or reassembly a malfunction occurs and the exact nature of that malfunction. Even when an operational failure is described in detail it is sometimes difficult to pin it down unless it is known exactly how many parts have been removed or replaced when the trouble develops. Also, the use of correct terminology for all parts will greatly ease the interpretation of your question.

Being specific and detailed in your requests for assistance serves a two fold purpose. First, it enables your instructor to solve your problems in a minimum of time, which is definitely an advantage to you; and secondly, in the process of getting your question down clearly on paper, you will gain a better understanding of the mechanism itself and many times the additional thought and analysis that is necessary in doing so, may even result in your own solution to the problem.

## This ServiShops

BUSINESS...

By Clair Schmitt



The following is a letter from Mr. H. B. Myers, Student #277. It is a good illustration of what is being done to help alleviate the camera repair situation that exists today. Congratulations, Mr. Myers, and continued success in your profitable future.

Dear Mr. Schmitt:

You might be interested to know why I have been so slow with this lesson. About the time that I received this lesson, the work load in my shop got so heavy that I have not been able to devote much time to study. This time of the year is when we have our largest influx of visitors and you know what this can mean to a camera repairman.

When I first opened my shop for business last May it was a slow start but has been getting better each month. I am working full time at it, six days a week and from ten to twelve hours a day. I think that you will agree with me that that leaves me with very little time to study.

Enclosed is the only form of advertisement that I use along with the good work that I try to do. I have placed these cards with the major photographic equipment stores in Tucson and they hand them to their customers when they inquire about repairs on their equipment. I have found this to be a very inexpensive way to advertise. I have found that most of the stores here in Tucson do not like to bother with sending their customers equipment out of town so they find it easier to hand out my cards. It was a little slow at first until they had time to evaluate my workmanship.

FROM  
STUDENT #277

NAME  
HOWARD S. MYERS

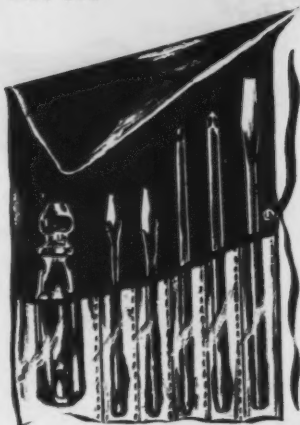
ADDRESS  
PHOTOGRAPHIC EQUIPMENT REPAIR SERVICE  
1001 S. 1ST ST.  
TUCSON, ARIZONA

Location: Three quarters of a mile south from Alhambra and Third Street, then one half block west from Alhambra.

There are times when it is not possible for me to be at my shop at the hours shown on the reverse side of this card, as it is suggested that you telephone to be sure that there will be someone at the shop to service your equipment.

## SCREWDRIVER SETS

No. 385



List Price  
\$.90 set

Unbreakable amber  
handle with heavy  
aluminum chuck

1. Point #2 Recessed Blade
2. Point #1 Recessed Blade
3. Mechanic 1/4" Blade
4. Electrician 3/16" Blade
5. Cabinet 1/8" Blade

**Product**  
National Camera Repair School  
Englewood, Colo., U.S.A.

## New Service Tool Kit

**\$15.50**

**LOCK**  
Nickel plated  
snap type latch



**DRAWER SLIDE**

Strong compound drawer slide with positive stop and patented spring release.



**LIFT-OUT TRAY**

Will fit in either end of top drawer. 16 compartments, each 1-12/16 x 1-12/16 x 7/8, provide filing space for small items.

Combining all the convenience of a tool or die makers chest plus ease in carrying, number 2020 presents a new concept in hand carried tool boxes. The drawer arrangement permits use in restricted area where space does not allow the opening of more conventional type boxes. Especially useful for the service mechanic. Suitable for the home workshop. Finished in dark brown baked enamel contrasting tan on drawers.

STYLE NO.	DIMENSIONS		
	L.	W.	H.
2020	20	8 1/4	6 1/4
Top Drawer	18 1/2	8	1-15/16
Lower Drawer	18 1/2	8	2-13/16

**NET WEIGHT**

15 lbs.

**SHIPPING WEIGHT**  
ONE TO CARTON

17 lbs.

Top drawer has 12 permanent compartments 2 1/2 x 2 x 7/8 plus 2 removable partitions.

**ServiShops Product**

National Camera Repair School  
Englewood, Colo., U.S.A.

I have one wholesale house that picks up a lot of equipment along their route and then bring it to me for repairs and when I have it repaired pick it up at my shop at no cost to me. I think this is a good deal for both of us. It gives me the work and at the same time they in turn do not have to go to the trouble of packing and mailing.

You may use my experience in getting work as a suggestion in the Camera Craftsman if you think it might be of value to others.

Howard B. Myers  
Tucson, Arizona

## Our Students Speak



"Our camera repairs are coming along very nicely and, as a National Camera ServiShop, we intend to keep it that way."

Charles R. Hoppie  
Buffalo, New York

"I think Miss King deserves a pat on the back for the wonderful way she is handling things. I've really received prompt replies to my questions in a very pleasant and understanding manner. Give her a five buck raise will you?"  
(Note: Delphine got the raise)

Charley Schickel  
Lancaster Penna.

"We are most pleased with the course and do not hesitate to recommend it most highly. I find it not only interesting but your lessons have been instrumental in establishing a fine repair shop in our store which has been growing by leaps and bounds."

Robert St. Amant  
Redfox Camera Center  
Huntington Park, Calif.

I received my Servi-Shops Motion Analyzer the first part of this week and found that it came up to all of my expectations. I like the smart appearance. At first I set it up on one of my work benches. It didn't stay there very long. Two hours later I had it up front on a counter where it can serve as a valuable sales aid as well as an important shop tool.

Chester M. Bruszewski  
Delano, California

"Here is a picture of any week. Just a small part of some of my work. Thanks to your School and Letterheads."

Henry S. Kovitz  
Scranton, Pennsylvania



I was not satisfied with just reading about the Rollieflex so I got one to take apart and study it more thoroughly. I disassembled the Rollieflex to the point studied in the text. I had a little trouble at two points of reassembly, they were, the film counter dial and the M-X lever. But with a little more studying and working I got it together. Now it looks as good as the day I got it. I think this was by far the most interesting lesson of the course.

Mr. Ralph E. Zamosky  
Detroit, Michigan

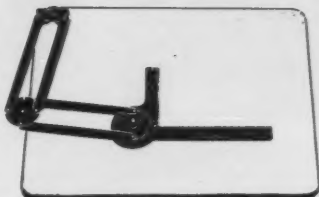
While I was at the Eastman factory I asked them what they thought of National Camera Repair School and their answer was very favorable to you.

Raymond Warnke  
Grand Rapids, Michigan

## draftette

a portable drafting instrument  
made of sturdy anodized aluminum  
designed for: **sketching**

**drawing**  
**drafting, etc.**



PRICE **\$4.95**  
ONLY

Instrument only...

Complete with 10x13" drawing board \$5.95

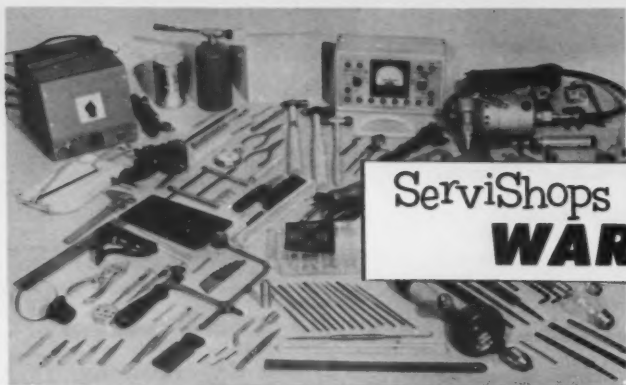
Complete with 11x17" drawing board \$6.50

check these features ✓

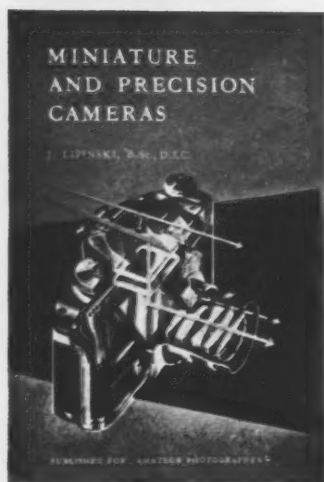
- 1 **QUALITY** — All aluminum construction — available in jet black — anodized with gleaming, white-filled numbers and letters.
- 2 **ECONOMY** — Costs much less than other drafting machines — you can afford one for home, use for office, shop, school or field.
- 3 **PRECISION** — All scales machine calibrated to  $\pm .0005$  of an inch — scientifically engineered to retain its original accuracy with 180 degree protector.
- 4 **RUGGEDNESS** — Not a gadget — draftette is a sturdy constructed instrument that will withstand hard normal use indefinitely.
- 5 **COMPACTNESS** — Draftette (without board) folds like a jackknife... slips into drawer, pocket or briefcase. Draftette instrument complete with Draftette board also fits into briefcase, ready for use anytime, anywhere.

A **ServiShops** Product

National Camera Repair School  
Englewood, Colo., U.S.A.



## ServiShops **WAREHOUSE**



### **MINIATURE AND PRECISION CAMERAS**

by J. LIPINSKY

A detailed and thorough study from an engineering point of view of the mechanism and problems involved in the design of modern precision cameras. A technical work for those whose work requires unconventional uses of their cameras. Of particular interest to manufacturers, as well as professional photographers, camera repair men, etc. 360 pgs. 8 1/2 x 5 1/2". 344 illustrations.

**\$7.95**



#### **MORRIS E-Z TAP & DIE SET**

SIZES: 40-48 1/2-60 1/2-72 1/2-84

Here is a set of precision tools that any hobbyist or tool maker would be proud to own! Set is put up in a fabric lined metal case with spring hinge cover. Tools are held in a wood block base. Taps are contained in the hollow handle of the holder.

**CONTENTS:** 4 Taps, 4 Dies, 1 E-Z Tap & Die Holder, 4 Ratchets, 1 Set Screw Wrench  
Price Complete: **\$12.99**

#### **WHAT DO YOU WANT?**

Your "Camera Craftsman" Editors want to print the articles and editorials you like best. What do you like? What don't you like? New ideas for additional departments are always welcome.

Criticize this issue and send in your comments.

**14 Camera Craftsman, May - June , 57**





COMPREHENSIVE OUTFIT  
(Ref. No. COM/10)



COMPREHENSIVE OUTFIT — MODEL COM/10

Consisting of:  
Large wooden case (Model MA/C03), containing the following:-

BED 10" long = 234 mm., with adjustable swivelling feet,  
HEADSTOCK complete with draw-in-bar,  
TAILSTOCK with runner, with male and female castles.

(Specify whether Standard Tailstock or Tailstock Ref. No. TA/8 mm. is wanted)  
TIP-OVER TOOL REST,  
CS/7 COMPOUND SLIDE REST, with 1 set - 6 (shaped) Cutting Grinders,  
VS/15 VERTICAL SLIDE.

TD/18 TAILSTOCK DRILLING ATTACHMENT,  
LA/100 LEVER ATTACHMENT for slides,  
CDA/2A SELF-CENTRING DRILLING ATTACHMENT.

DC/21 DRILLING (graduated screw feed) ATTACHMENT.  
SF/31 SAFETY FRICTION PULLEY ATTACHMENT.

CP/42 CARRIER PLATE,  
MP/51 HANDRIL FACE-PLATE,  
CC/200A 30 off SPLIT CHUCKS from .2 to 4.6 mm.

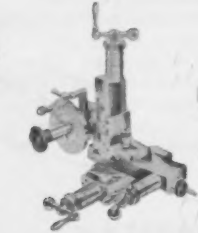
SS/62 1 set - 5 STEP CHUCKS with 9 steps each,  
BC/71 1 BRASS CEMENT CHUCK, 1 1/2" dia.,  
BC/72 1 BRASS CEMENT CHUCK, 3/4" dia.,  
BS/710 1 set - 3 BRASS CEMENT CHUCKS with holder.

FM/7A FEMALE CENTRE,  
MC/75 MALE CENTRE,  
ES/78 1, 8-SCREW CRACK (Ball Chuck),  
GE/F SELF-CENTRING 3-jaws SCROLL CHUCK with 8 mm. diameter.

AR/79 ARBOR 1/2" dia.,  
AR/80 ARBOR 3/4" dia.,  
RT/5 ROLLER T. REST, 2 steps.

Distance between centres: approx. 3" - 10 mm.  
Approx. weight of complete Outfit: 20 lb. = 9 kg.

**R. Product**  
National Camera Repair School  
Englewood, Colo., U.S.A.



COMPOUND SLIDE REST  
(Ref. No. CS/7)  
VERTICAL SLIDE  
(Ref. No. VS/15)  
UNIVERSAL WINDING ATTACHMENT  
(Ref. No. WD/100)  
GRINDING ATTACHMENT  
(Ref. No. GR/100)

**#395.00**  
F.O.B. DENVER

# KITS KITS KITS



**YOU'VE ASKED FOR  
THEM AND HERE  
THEY ARE . . .**

**NEW KITS NOW AVAILABLE**

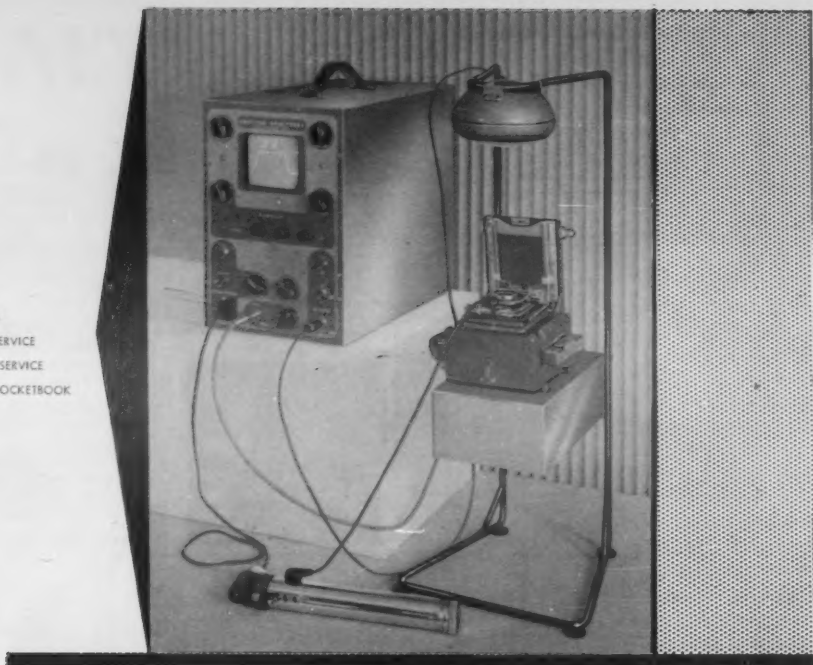
**1/4 Price!**

**Your  
TRANS-RAK  
Costs you only  
\$1.00 with any  
ServiShops  
Kit order totaling  
\$20.00 or more!**

<b>WIND ASSEMBLY ASSORTMENTS</b>	
For Box Camera . . . . .	\$6.95
For Popular Priced Folding Camera . . . . .	6.95
<b>SYNCH INSTALLATION KITS</b>	
External (Connectors, insulators, etc.) . . . . .	9.75
Internal (Replacement parts, contact material, etc.) . . . . .	15.50

When TRANS-RAK is not ordered, all KITS include a P201 plastic tray for storing.

- PLANNED FOR YOU
- DESIGNED BY EXPERTS
- BUILT TO GIVE YOU SERVICE
- TESTED TO GIVE YOU SERVICE
- PRICED TO FIT YOUR POCKETBOOK



## TEST YOUR PHOTO EQUIPMENT IN A MATTER OF SECONDS

### YOU NEED LESS TIME

Because your Analyzer requires fewer adjustments to make a test, you'll save time and steps on every test you make. You'll actually need up to 50% less time than you'd use on even a single, high cost special purpose instrument. And you can go from test to test with no complications - No worry about calibration or accuracy!

### YOU BOOST YOUR EARNINGS

Savings of time and an increase in accuracy guarantee you higher earnings. The most expensive thing you own is your own time! Make a shutter or synch adjustment with half the testing and you double your earning power! Your ServiShops Analyzer means more money!

Send  
For  
**FREE**  
Information  
Now

**NATIONAL CAMERA REPAIR SCHOOL**  
ENGLEWOOD,                      BOX 174                      COLORADO

Camera Craftsman, May - June , 57 17

# SHOP SHOTS

HERE'S WHERE SERVISHOP CRAFTSMEN LEARN AND EARN  
Made a change in your shop lately? Make a quick picture  
or two and send them in. Share your ideas.

▶ Jesse D. Riehle  
Grand Rapids, Minn.



▲ W. M. Jackson  
Atlanta, Georgia

▶ William J. Cummins  
Pensacola, Florida

▼ R. J. J. Quicci  
Wooster, Ohio



August P. Longo  
Tustin, Calif.



▲ Russel E. Smith  
Findlay, Ohio

▶ Sgt. Melvin Baker  
U. S. M. C.

▼ Doreen L. Smith  
Ottawa, Canada



# FINAL liquidation offer

Protect your customers' camera from heat and shock with this sturdy...

## CAMERA CARRYING CASE

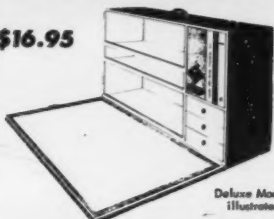


- Made of rugged 3/8" plywood.
- Hardware is heavy duty.
- Heavy luggage-type handle.
- Corners protected with metal.
- Lined throughout with sponge rubber.
- Has 2 turnbuckle catches.
- Inside dimensions - 18-3/4" long, 10-1/2" wide, 8-3/4" deep.
- Finished in beautiful clear lacquer.

A BARGAIN AT... **\$10.75**

## Portable TOOL and WORK CABINET

**\$16.95**



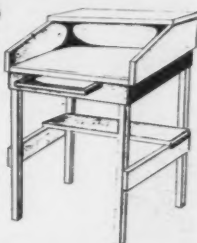
Deluxe Model Illustrated

... Sturdily built of wood and masonite with attractive brass hardware, it is ideal for the busy camera repairman who needs a compact working space in which to keep and carry tools on outside calls. Ideal, too, for the student who has not yet built his work shop, it has a section to hold the Camera Repairman's Handbook and lesson text binders.

Size of overnight suitcase (18" x 20" x 6-3/4") it is easily carried and stored. . . .

## CAMERA REPAIRMAN'S WORK BENCH

**\$15.95**



Work level:  
42" above floor

Table top  
work area:  
34-1/2" x 21-1/2"

Top shelf:  
9" wide, 5" above  
table top

This is a jeweler's type stand, made of 3/4" pine, finished in neat battleship gray. Ideal for work or study, it takes up minimum floor space, is topped with sturdy linoleum, and is equipped with canvas catch tray.

Shipped partially knocked down; setting up takes only a jiffy.

## MISS MILLIE A HIT AT IPEX

It was with great pride that your School placed ServiShops Motion Analyzers on display at its booth at the International Photographic Exposition in Washington. The response by visitors was even more than originally anticipated.

Hundreds of dealers, NCRS students and other members of the trade had the opportunity to watch Miss Millie go through her paces and make tests on their own. Miss Millie Seconds, the ServiShops Motion Analyzer, performed well and had an answer for every problem with which she was confronted.

During the periods when the public visited the Exposition, many photographers having camera problems were referred to the NCRS Booth where a quick analysis of the trouble was always forthcoming.

The most often repeated impression of the Analyzer by dealers, photographers and manufacturers alike was the ease with which the picture on Miss Millie's screen could be interpreted. With a minimum or even complete absence of technical explanation, everyone could immediately see the accuracy of camera or flash equipment.

Most dealers immediately recognized the value of this feature of the Analyzer. The average dealer is forced to spend a great deal of time in making technical explanations to his customer when his equipment is not functioning properly. Since the customer can so easily understand the picture shown on the Analyzer, up to 90% of the explanations normally necessary can be eliminated. Although technical

language, including "milliseconds" and "flash bulb peak duration," etc., can certainly be pictured more easily with the use of the Analyzer for a well informed photographer, the use of any technical terms can be completely dispensed with if the customer wants only to see whether his camera will work or not.

Almost invariably, after his first view of the picture given on the screen, the dealer or an amateur could immediately say, "why, that exposure is 20% long!" or, "that shutter will work perfectly with a no. 5 bulb at 1/200 second!"

The National Camera Repair School was interested in building a tool for saving your time in the repair of photo equipment. The fact that your Analyzer will save a great deal of time in making adjustments or repairs, or analyzing troubles is certainly ample reward for the effort that went into the developing of the instrument. The fact, however, that the ServiShops Motion Analyzer is also so simple to understand and use that anyone can get valuable information from it, whether he be customer, dealer, repairman or manufacturer, is an exciting bonus that really provides you with a multi-purpose tool.

In addition to the dozens of tests now so easy to make with your Analyzer, more are being reported by Analyzer users every week. You will also work out new techniques. Many test techniques are described in the technical papers and in the instruction manual already published. A complete new series of tests are being included in the new paper soon to be announced. Keep abreast of Analyzer developments by watching the Craftsman.



*Want to  
increase your*  
**? PROFITS ?**

See Page #7

**THE CAMERA  
CRAFTSMAN** *from*

**NATIONAL CAMERA REPAIR SCHOOL**

*Box 174  
Englewood, Colorado*

BULK RATE  
U. S. POSTAGE  
PAID  
ENGLEWOOD, COLO.  
PERMIT NO. 368

Form 3547 Requested  
Return Postage Guaranteed



